Minimizing Methane Emissions from Natural Gas Compressor Stations and other Related Equipment

Tad Aburn and Joshua Shodeinde, MDE - Stakeholder Meeting # 4 - June 28, 2019

Presentation Outline

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A Little Background for New Participants

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Maryland Commission on Climate Change

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US Climate Alliance

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Past Stakeholder Meetings

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Today's Focus - Regulatory Requirements

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Next Meeting - Voluntary Program

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Discussion/Comments

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Next Steps

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Why is MDE Pushing this Issue

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Maryland has one of the country's most aggressive programs to address climate change

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Methane is a highly potent greenhouse gas that needs to be acted upon quickly because it is a short-lived climate pollutant (SLCP)

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Leaking methane has been identified by researchers and regulators as a major issue that needs to be addressed

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Maryland has 3 initiatives started to address leaking methane

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Compressor stations and other related equipment (today's meeting)

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Landfills

-

Wastewater Treatment Plants 4

The Greenhouse Gas Emission Reduction Acts (GGRA) of 2009 and 2016

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Originated in 2007 by Executive Order which resulted in a 2008 "Climate Action Plan"

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This led to the "Greenhouse Gas Emission Reduction Act" of 2009

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25 % Greenhouse Gas (GHG) Emission reduction by 2020

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2009 law reauthorized in 2016 … new goals added

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40 % GHG reduction by 2030

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The acts also require that the States GHG reduction plans to support a healthy economy and create new jobs 5

The Maryland Commission on Climate Change (MCCC)

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MCCC codified into law in 2015

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Establishes a balanced, bipartisan Commission

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Representatives from state and local government, the private sector, environmental advocacy groups, labor, the general public and more

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Basic charge of the Commission:

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Provide recommendations on how to reduce GHG emissions and adapt to the impacts of climate change

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Full Commission and four working groups (Mitigation, Adaptation, Science and Communications) meet routinely

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All meetings open to public

-

MCCC has recommended that reducing in-state methane leakage be a very high priority

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https://mde.maryland.gov/programs/Air/ClimateChange/MCCC/Pages/index.aspx

The U.S. Climate Alliance 7

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Maryland joined the U.S. Climate Alliance (USCA) on January 10, 2018

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Originally, an alliance of 12 states … now 24 states

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Basic mission … to meet the goals of the Paris Climate Agreement … at least 26-28 percent below 2005 levels by 2025

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Multiple working groups … one focused on SLCP

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Pushing efforts to reduce methane, hydroflourocarbons (HFCs) and black carbon

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Besides our work on methane, Maryland is joining other states like CA, and NY to adopt 2019 regulations to phase out the use of HFCs

www.usclimatealliance.org/

Climate Alliance States Recent Activity

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California law requires reducing emissions of methane and HFCs by 40 percent, below 2013 levels by 2030

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Massachusetts is the first state in the country to impose annually declining methane emissions limits (for 2018, 2019, and 2020) on natural gas distribution system operators

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Colorado was the first state to regulate methane emissions from oil and gas operations. The 2014 rules will prevent an estimated 65,000 tons per year of methane

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New York has developed a Methane Reduction Plan, including 25 measures across 5 agencies, to cut methane from oil and gas infrastructure, waste management, and agriculture 8

Two Pieces to MDE's Effort to Minimize Leaking Methane Emissions 9

Regulatory Requirements

Traditional Regulatory Issues

Voluntary, Data Driven Agreements

Non-Traditional Reduction Opportunities

Today's Meeting

Next Meeting

Reciprocating Engines

Leak Detection and Repair

GHG

Reporting

Reciprocating

Engines

Blowdown Notifications

Natural Gas-Powered Pneumatic Devices

Methane Mitigation Measures

Methane

Offsets

Community Meetings

Air Quality Indicator

Network

Stakeholder Meetings

TODAY'S MEETING

Summary and Discussion of "Discussion Draft" of Regulation

MEETING 3 - March 8, 2019

Regulatory and Voluntary Concepts - Specifics

MEETING 2 - July 10, 2018

Regulatory and Voluntary Concepts - General

MEETING 1 - June 29, 2017

Overview of the Natural Gas Industry 10

Next Meeting - Complementary, Non-Regulatory, Data-Driven Agreements

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The Discussion Draft Where did the regulatory language come from?

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"Discussion Draft" distributed with meeting materials

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Built from:

□

Methane mitigation programs in other states

□

California, Colorado, Pennsylvania, New York, others

□

EPA 2016 NSPS OOOOa

□

Review of stakeholder comments

□

Meetings with each facility and community and advocacy groups 12

What is a "Discussion Draft"?

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A draft intended only to trigger discussion and input from stakeholders

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Is based upon best practice from other leadership programs

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Does not represent MDE or State policy

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Comment today … or submit comments in writing over the next three weeks

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Individual meetings or calls - Just ask 13

Part I: Regulatory Requirements 14

GHG Reporting

Reciprocating Engines

Today's Review Process

1.Joshua will go through the full summary of the "Discussion Draft"

2.When you have a question … raise your hand … Carolyn will acknowledge and log your name and question.

3.After completing the summary … we will address questions in the order they were logged in

Leak Detection and Repair

GHG

Reporting

Reciprocating

Engines

Blowdown Notifications

Natural Gas-Powered Pneumatic Devices

Applicability

Discussion Draft, Page 1 - Reg .01B(1)

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Existing and "Any new, modified, or reconstructed natural gas compressor station, natural gas underground storage facility, or liquefied natural gas station."

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Three compressor stations

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Dominion, Myersville

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TransCanada, Rutledge

-

Transco, Ellicott City

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One underground storage facility

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Texas Eastern, Accident

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One import and liquefaction/export facility

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Dominion, Cove Point 15

Leak Detection & Repair (LDAR)

Discussion Draft, Pages 2/3 - Reg .03

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Facilities to submit initial methane emissions monitoring plan within 60 days of regulation adoption - §A(1)

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List of components, monitoring equipment and observation path

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Weekly Audio/Visual/Olfactory (AVO) Inspections - §A(4)

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First LDAR monitoring survey due within 150 days of effective date of regulation. - §A(5)(a)

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Within 150 days at the startup of new compression

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Quarterly monitoring survey using Optical Gas Imaging (OGI) or Method 21 - §A(5)(a)

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Exception for electric engines (monthly AVO, annual LDAR inspections) - §.03(B)

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LNG specific requirements (same as clean action plan requirements) - §§.03(B) and (C)

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LDAR … Continued

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No reduction in frequency of quarterly survey proposed

Repair Requirements - §A(6)

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Repairs should be made and certified within 30 days of discovering a leak

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Quarterly and Annual record keeping and reporting - Reg .07A(1)(a) and (b)

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Delay of Repair (DOR) provisions if:

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Specialty part needed

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Repairing is technically infeasible

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Repair requires a vent or station blowdown

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Repair is unsafe to repair due to the operation of unit 17

Pneumatic Devices

Discussion Draft, Pages 3/4 - Reg .04

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Pneumatic devices will be subject to LDAR - §A(1)

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Bleed rate cannot exceed 6 standard cubic feet per hour - §A(2)

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Additional requirement: Beginning Jan. 1, 2022 switch to electric or compressed air, or use vapor collection - §B(1)

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Reciprocating Engines

Discussion Draft, Page 4 - Reg .05

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Subject to LDAR - §A

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Vented gas is routed to a vapor control device - §B(1)

OR

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Rod packing required to be measured annually and replaced if exceeds emission threshold of 0.5 scfm - §B(2)

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Canada's threshold is 0.81 scfm (~0.04 scfm for equipment installed after January 2023)

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California's threshold is 2 scfm

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$/metric ton of methane = $500; calculation using EPA formula

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DOR provision

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Vapor Collection System

Discussion Draft, Page 4 - Reg .06

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All gases collected with a vapor collection system (VCS) shall route all gases, vapors and fumes to:

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Sales gas system;

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Fuel gas system; or

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Vapor control device

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VCS subject to LDAR and AVO inspections - §§ B and C 20

Blowdown Emissions

Discussion Draft, Pages 5/6 - Reg .07(B)

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Require Blowdown Events to be Reported

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Affected facilities shall notify the Department and publicly accessible website at least 7 days prior to any planned blowdown event - §B(1)

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Emergency blowdowns to be publicly posted within one hour of occurrence - §B(2)

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All methane emissions from blowdown events shall be reported to the Department annually by April 1st - §B(3)

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GHG Reporting

Discussion Draft, Page 6 - Reg .07(C)

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All facilities, regardless of the size of GHG emissions, will be required to report their GHG emissions to the Department - §§ C(1) and (3)

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MDE's reporting requirements, calculation methodology, and procedures mirror EPA's Greenhouse Gas Reporting Program - § C(2)

•

Maryland reporting requirement will harmonize reporting with federal 22

Requirements in the Discussion Draft Compared to Others

Maryland

EPA - 2016 NSPS OOOOa

CARB - Oil and Gas

CO - Regulation 7

NY - Oil and Gas Stakeholder Outline 11/8/2018

Applicability

Transmission and Storage

Production, Gathering and Processing, Transmission and Storage

Production, Gathering and Processing, Transmission and Storage

Production, Gathering and Processing

Production, Gathering and Processing, Transmission and Storage, Distribution

LDAR in Transmission and Storage

(Regulation .03)

Quarterly monitoring using OGI or Method 21.

Repairs within 30 days of leak discovery

Quarterly monitoring using OGI or Method 21.

Repairs within 30 days of leak discovery

Quarterly monitoring using Method 21. Frequency reduces based on leak %.

Repairs within 30 days of leak discovery

Quarterly monitoring using OGI or Method 21.

Repairs within 30 days of leak discovery

Quarterly monitoring using OGI or Method 21.

Repairs within 5-30 days of leak discovery

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Maryland

EPA - 2016 NSPS OOOOa

CARB - Oil and Gas

CO - Regulation 7

NY - Oil and Gas Stakeholder Outline 11/8/2018

Pneumatic Controllers

(Regulation .04)

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Bleed rate < 6 scfh

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In 2022, switch to electric or compressed air or utilize vapor control

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Bleed rate < 6 scfh

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Bleed rate < 6 scfh

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Switch to electric or compressed air or utilize vapor control

- Bleed rate <6 scfh; no-bleed where grid power (if placed in service on/after 5/1/2014)

-

Bleed rate < 6 scfh

Recip engines rod replacement

(Regulation .05)

Measure rod packing annually and replace at emission threshold (0.5 scfm) or utilize vapor control

Every 3 years or 26,000, whichever is sooner

Measure rod packing annually and replace at emission threshold (2 scfm) or utilize

vapor control

Every 3 years or 26,000, whichever is sooner

Every 3 years or 26,000, whichever is sooner or utilize vapor control 24

Requirements in the Discussion Draft Compared to Others - Continued

Maryland

EPA

CARB - Oil and Gas

CO - Regulation 7

NY - Oil and Gas (Under development) Stakeholder Outline 11/8/2018

Blowdown events at compressor stations

(Regulation .07B)

Report events to State and publish as applicable

No requirement

No requirement

No requirement

-

Report events to the State and other responsible officials

-

Use in-line compressors

-

No compressor blowdowns

GHG

Reporting

(Regulation .07C)

Annual submission for all facilities

Annual submission for facilities that emit 25,000 metric tons of CO2e under Part 98

EPA Part 98 only

EPA Part 98 only

EPA Part 98 only

- currently under consideration 25

Requirements in the Discussion Draft Compared to Others - Continued

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Summer - Receive stakeholder comments on Discussion Draft of regulation

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Fall - Next stakeholder meeting

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Winter 2019 and Spring 2020 - Advisory Council and other rule adoption procedures

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Spring 2020 - Final adoption

Schedule 26

Next Stakeholder Meeting 27

Reciprocating

Engines

Review and Discussion of the Template for

Non-Regulatory, Data-Driven Agreements

Air Quality Indicator Network

Methane Offsets

Methane Mitigation Actions

Community Meetings and Public Reports

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